Building Advanced Fleets
and thus
our Port's Jobs- and Tax-Base

"The Case for Gloucester's
'I4-C2 Boat-Yard' "

Specializing exclusively in the New Construction of 'Green' Low-Carbon Commercial and Pleasure Craft

A Proposal by Altenburger, Rubin, Bolger of Gloucester

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Page 1. A Marine-Industrial Proposal

by Susanne Altenburger of Phil Bolger & Friends Inc., Boat-Designers, Gloucester and Michael David Rubin, Architect/Planner/Consultant, CSI/LEED-AP, Gloucester based on a concept by the late Phil Bolger (1927-2009), Designer of Boats '52-'09

Centrally located in America's Oldest Seaport, we project I4-C2 to

1. **serve as Incubator and then Center of Advanced Least-Carbon Boat-Building,**
2. **leveraging R&D funding to initially build prototypes fit for $5/gal fuel-cost,**
3. **growing a year-round workforce employed at middle-class income-levels,**
4. **whose products attract local and regional clients in need of high-efficiency hulls for a range of commercial, institutional, governmental, and private uses,**
5. **spawning multiple spin-off ventures, competing with operations along Inner Harbor and the River, attracting more professionals to this industry here,**
6. **eventually making Gloucester a 'Go-To' Commercial Destination to exchange 5- to 7-digit payments for such advanced craft, with much of each contract (labor and services) to circulate through this economy multiplying each Dollar,**
7. **and a unique Destination with its Working-Port Tourism, steeped in history.**

Since high-efficiency hulls will be long for their weight, I4-C2's Size and Location right on the Inner Harbor is vital to be able to launch hulls of up to 150 *lean* feet in length, with construction and launchings in full view - part of the 'Harbor Walk'.

Page 2. Basic Fleet-Economic Premises:

New England's Working and Pleasure-Boat Fleets were designed for at best 1.20/gal of diesel. At $3.30 today Diesel-costs are projected to rise towards $4/gal in 2011-12, and further towards $5.- as the Great Recession subsides.

In both fishing and pleasure boats, affordable fuel and certain length-limiting regulations have resulted in many of these boats having become *progressively wider and heavier for their length requiring more power*.

Beyond fuel-cost, every boat-operation is affected by inevitable energy price-related cost-increases such as in hull-materials, paints, on-board gear, plus additional costs in fishing bringing the product to market.

With energy-cost increases across the economy, there is little future in just increasing fish- or ticket prices, as vital shares of your market would be lost.

Only energy-efficient types will remain viable fishing, whale-watching, law-enforcing, researching, cruising - fit for $5/gal by design and operation. In New England, *several thousand* fishing operations will need such craft.

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Page 3. Technical Solutions by Design & Construction:

Most folks familiar with boat design understand that per given weight and carrying-capacity a longer and leaner hull runs faster per given power, or will run at the same speed with a fraction of that power. Leaner & longer hulls offer significant fuel cost savings. And we need to pursue *at least a 50% reduction* of current consumption to make up for fuel-cost escalations!

While 'unheard of' today, history actually confirms that such lean-for the-weight geometries can be good working platforms and suitable for reliable operation, incl. fishing commercially across 4 seasons.

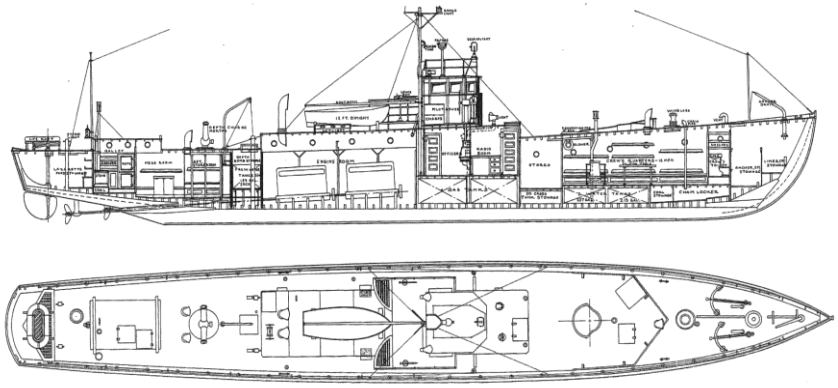
Gloucester has its own distinct experience with about a dozen long and lean, easily-driven commercial craft. Fisherman converted cast-off WW-1. Navy-vessels for dragging, seining etc. using them into the 1970s - wooden hulls built in a production of 300 in 1917-1918 !

Page 4. Lean Geometries built 1917-18

(Norman Friedman: US Small Combatants, 1987, pp.28-30)

1917 US NAVY Submarine-Chaser
110'Length (105'WL)
15'5"Beam (14'9"WL)
5'11" Draft on 150,000lbs Displ.
3x220hp x 16kts

300 were built for coastal defense, with 230 *Trans-Atlantic* crossings in WW-1 duty on a VERY LEAN Length-to-Beam ratio of 7 : 1 ! These lean shapes teach us much, as we face $5/gal in the near future.



SC 235 shows a standard World War I subchaser battery: a gun (in this case, a 6-pounder) forward, a Y-gun abaft amidships, and a depth-charge track right aft.

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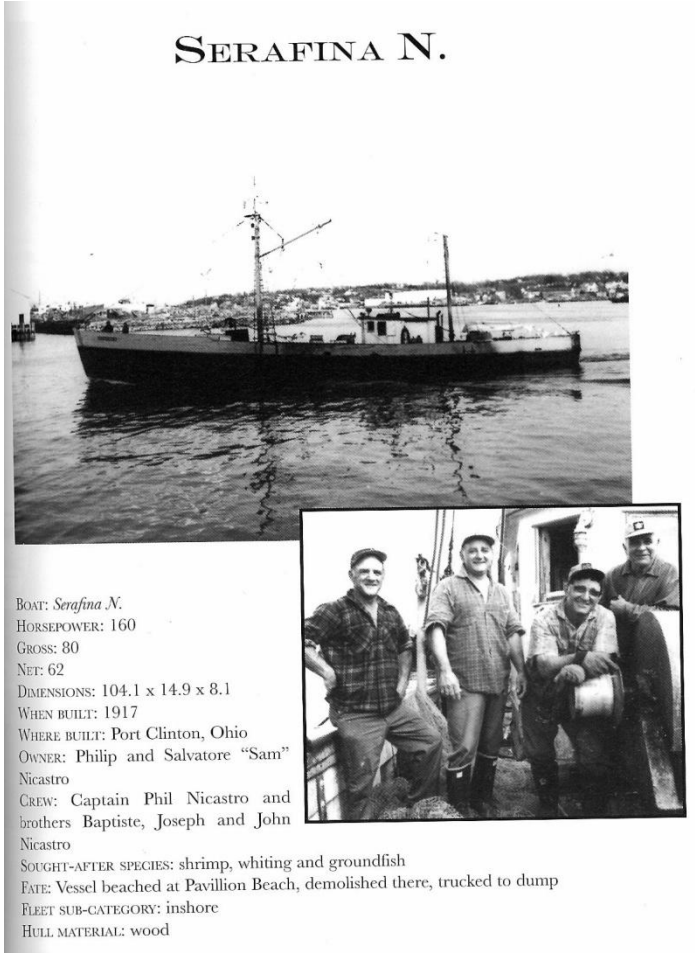
Page 5. Ex-Sub-Chasers would fish commercially (incl. side-trawling !) into the 1970s

Once de-commissioned, over a dozen worked out of Gloucester alone,
- re-powered with single-screw 140-200HP diesel engine,
- maneuvering in the harbor without bow-thrusters or tug-assistance,
- fishing up to 90-miles offshore Year-round,
- next to identical hulls from as far south as the Carolinas, coming up the coast following the fish.

(Photo & text from Lanesville's Peter K. Prybot's "White-Tipped Orange Masts", 1998, p.145.)



SERAFINA N.

BOAT: *Serafina N.*
HORSEPOWER: 160
GROSS: 80
NET: 62
DIMENSIONS: 104.1 x 14.9 x 8.1
WHEN BUILT: 1917
WHERE BUILT: Port Clinton, Ohio
OWNER: Philip and Salvatore "Sam" Nicastro
CREW: Captain Phil Nicastro and brothers Baptiste, Joseph and John Nicastro
SOUGHT-AFTER SPECIES: shrimp, whiting and groundfish
FATE: Vessel beached at Pavillion Beach, demolished there, trucked to dump
FLEET SUB-CATEGORY: inshore
HULL MATERIAL: wood

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Page 6. Givens on Gloucester's Waterfront:

In pursuit of a 50% reduction in fuel-burn, drawing on that 7:1 experience, but integrating modern hull-materials for safer structures, modern crew-ergonomic considerations, advanced propulsion-systems incl. wind-power - where would we build such hulls here in Gloucester ?

To construct advanced vessel-types for fishing, tourism, research, or pleasure requires a sizable climate-controlled building for year-round boat-building right on the harbor. There is *no such facility* available in Gloucester!

Well-established maintenance and repair yards at *Rose Marine* and *Rocky Neck Marine Railways* have routines that *do not include new vessel construction,* nor would there be space for such boat-building. *Montgomery's* storage and repair yard on the Annisquam only sporadically builds new skiffs or the rare smaller yachts. It has no climate-controlled facilities to build mid-size and larger hulls.

***GMHC* could use its railway for perhaps a 70-foot hull but as yet has no shed.**

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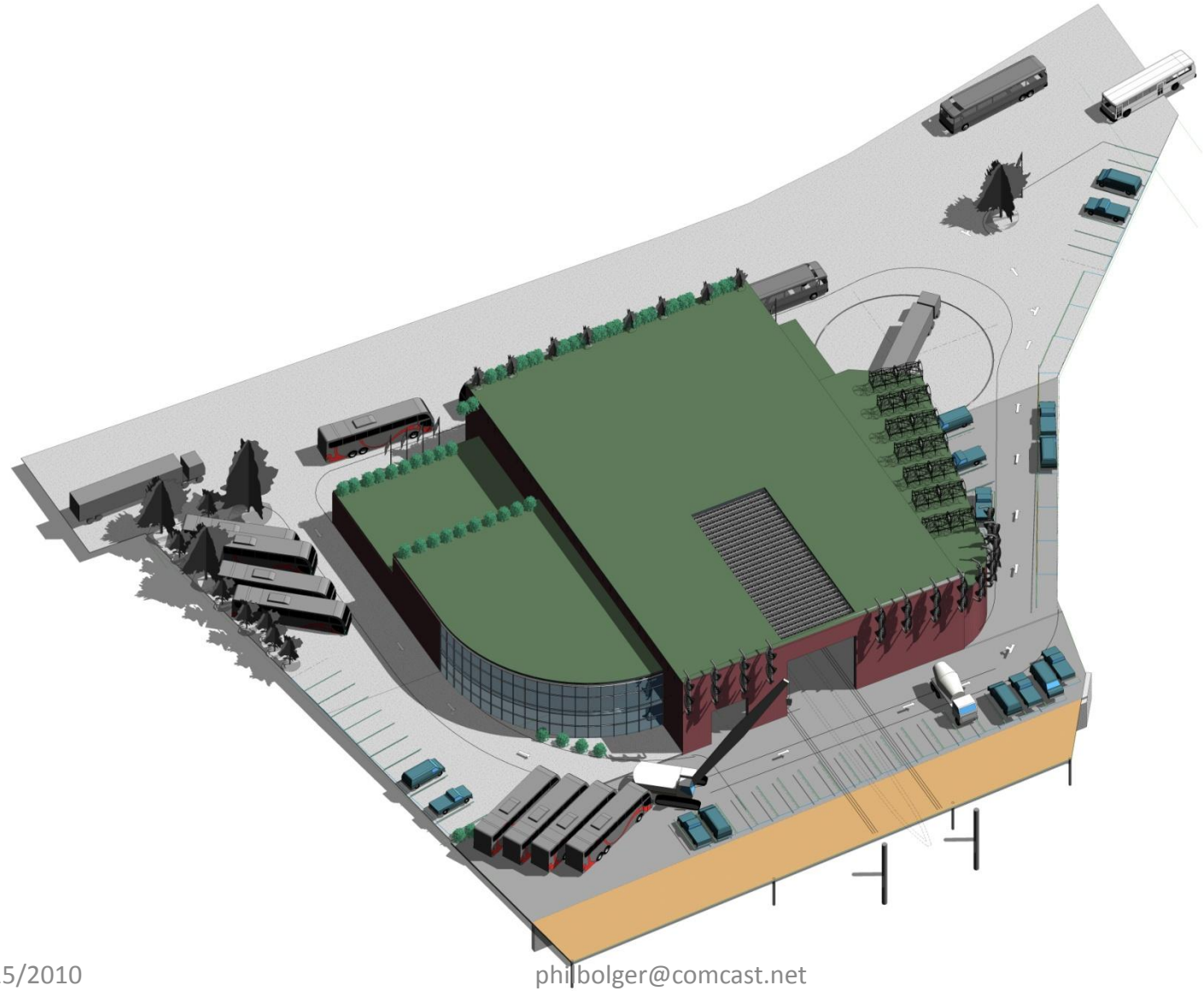
Page 7. I4-C2 is the only available property on the Inner Harbor big enough to build Lean Hulls:

A Hard Reality: For comparable capacity a conventional 90-foot fishing type translates into 150-foot lean length, a 70-foot Whale-Watcher into 110-feet.

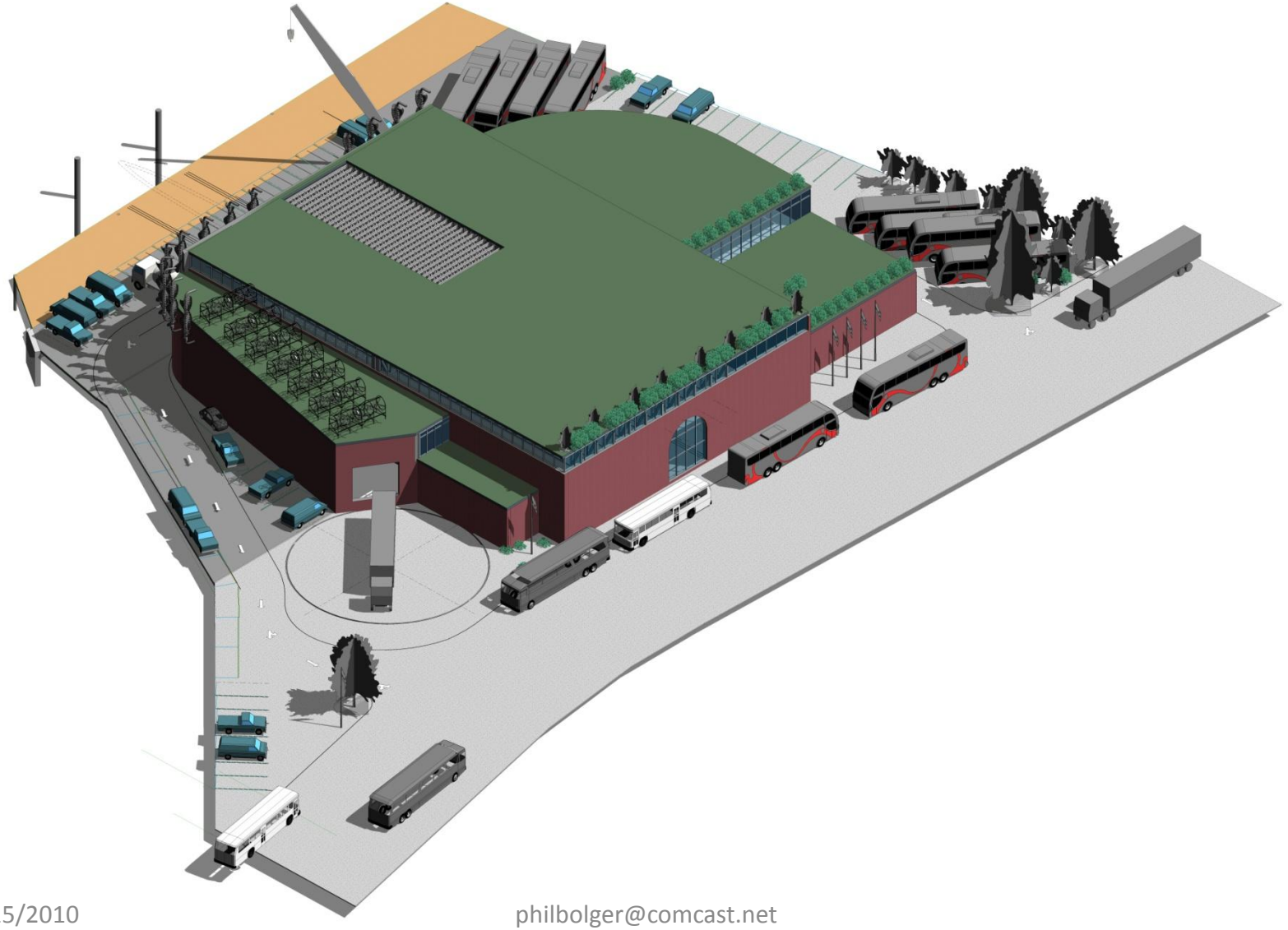
I4-C2's foot-print allows a Main-Building with 3 hull-assembly bays, 2 for craft up to 150-feet each in lean length and #3 for half-length types. Since the longest hulls have to be transferable sideways during assembly, the building structure must support a 180 x 80-foot clear roof-span via the deep trusses shown, with the center bay reserved for painting, outfitting.

Hull-Launching begins via a 60+foot 'launching-car' under the hull, with both traveling under wire-winch power on flush rails out the main-door, on to a tilting ramp. That ramp is supported via two winch-towers on pilings 30-feet out (4 such units at Rose Marine) to lower/tilt the outer ramp-end for a slow descent of the hull via rollers on the car into High Tide waters. A rolling hatch opening 30+% of the center-bay roof keeps the hulls from hitting the roof from below as they tilt on the ramp for launching.

Page 8 The ‘I4-C2 Boat-Yard’ from the S.W. air



Page 9 **The ‘I4-C2 Boat-Yard’ from the N.E. air**



Page 10. The Boat-Yard's Foot-Print

Respecting the Easements of the site around the 180-foot by 120-foot Main Building, and the attached multi-level structures on its East and West sides, the complex leaves plenty of public access to the harbor by foot, car, or coach. As one major attraction on the 'Harbor Walk', it offers inside-shelter, restrooms and second-story views.

Using a counter-clockwise traffic-flow, there is Coach- (8 units) and Client/Visitor Parking along the West-side, with parking for established Marina Tenants to the South right along the Boardwalk, and Yard-Staff parking to the East.

The Marina floats will need minor rearranging out to the Harbor-Line to allow Launching of hulls between them, adding 5 more Marina-Berths and a 'Harbor-Shuttle Landing' to ferry Coach- and Yacht-based visitors around the harbor.

All roofs will structurally support Alternative Energy Generators, 'Green Roof' features and a 'DOWN-TOWN ROOF-TOP BOTANICAL GARDEN' to retreat to for residents and visitors alike.

Page 11. Basic Building Functions

With an open floor-plan of near 180- by near 120-feet, the structure could serve Multiple Functions - should nobody ever want Sustainable Craft…

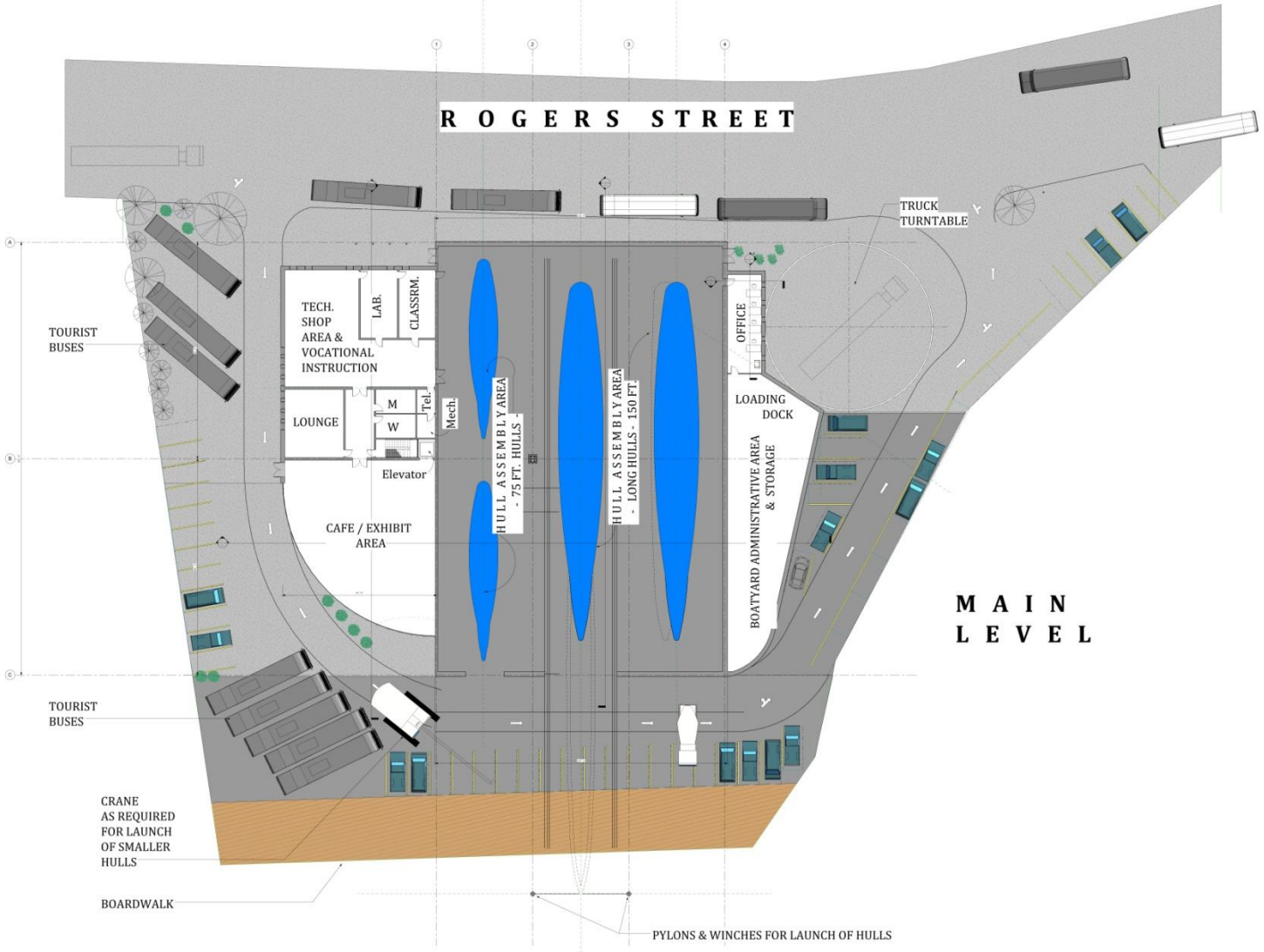
East of the main building are two levels for forklift-operated parts- and construction-supplies storage, plus staff and administration spaces. Integrated into the SE corner are public restrooms and showers for boaters. Semi-Trucks drive nose-first on to turn-table for *tail-to-dock rotation*.

To the west are several sub-assembly workshops on shop floor level. Strictly separated from the work areas, are a foyer with retail-options to receive coach passengers, offering a bus-driver lounge and restrooms.

Stairs and elevator up to the Mezzanine invite visitors/tourists to OBSERVE THE HULL(S) CONSTRUCTION ON THE SHOP-FLOOR through large glass-panels inwards, and to spectacular views out to the heart of the Working Harbor.

One story higher, stair and elevator open access to the ROOF-TOP GARDEN.

Interior Uses - Ground Floor



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Interior Uses - Second Story

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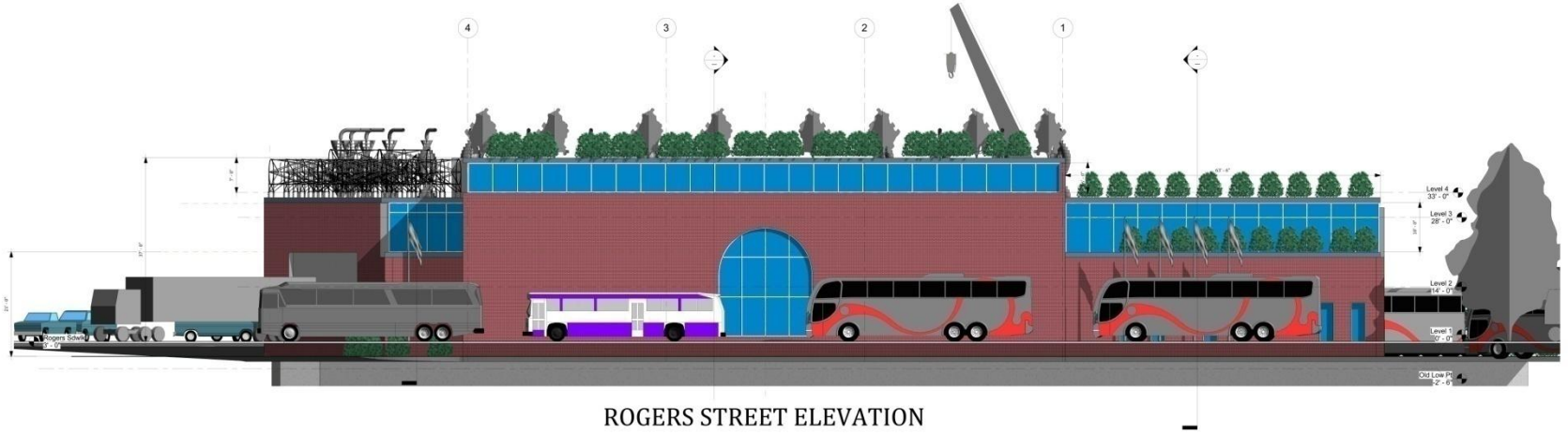
Page 14. Eye-Level View from Rogers Street



ROGERS STREET ELEVATION

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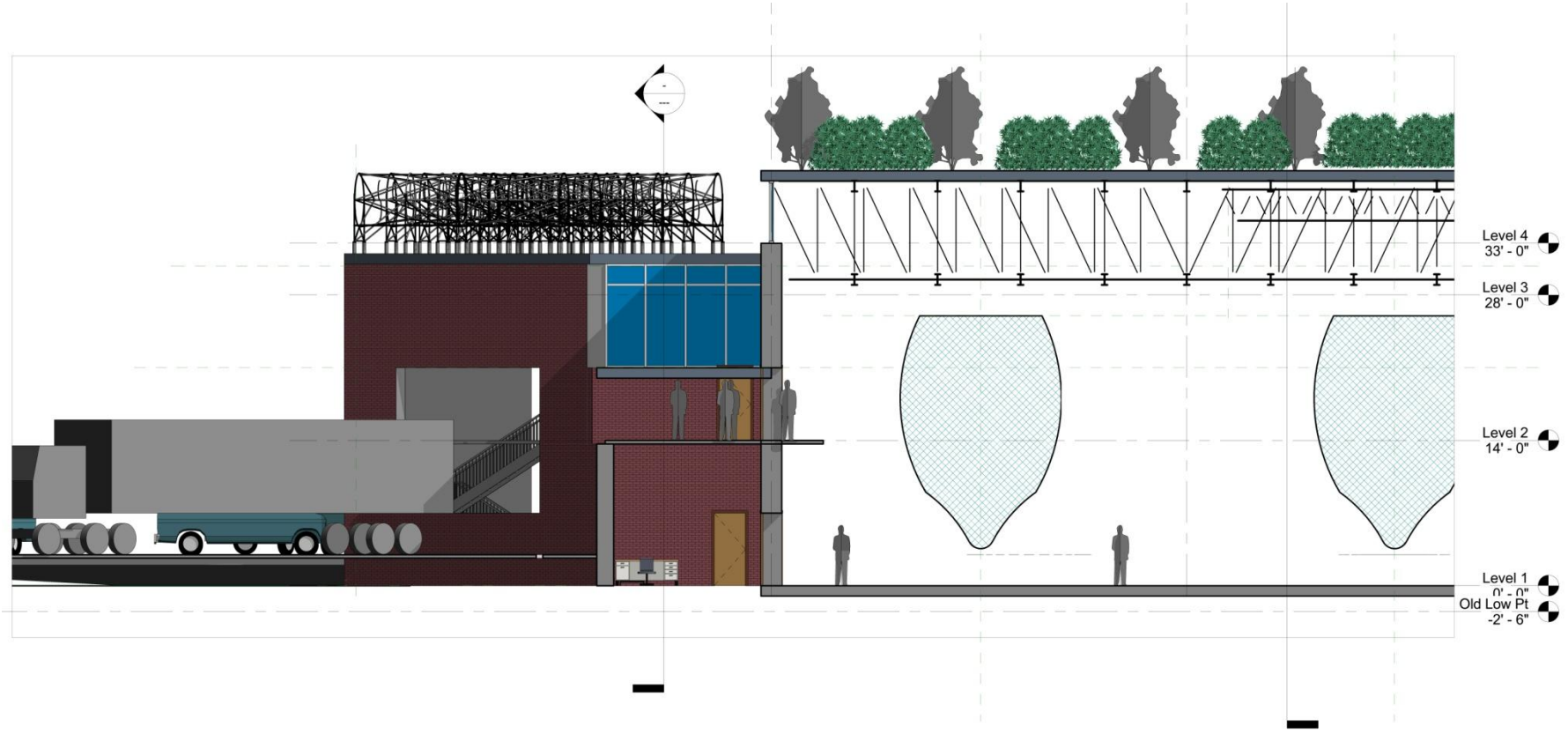
Section near Loading Dock



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Page 16. The Community's Leadership-Role Incubating this Vital Marine Industry (1/3)

- **The City's intends to retain full ownership of the property.**
- **While urgently necessary facing fuel-cost hikes, it is a considerable task to Revitalize Gloucester's Industrial Boat-Building Capability.**
- **It is in fact a major Public Policy Goal to re-introduce this additional Port-Industrial Leg to stimulate sustainable jobs and tax-base growth.**
- **And in this Great Recession Economy and in the context of serious Fisheries-Regulatory Uncertainties, this project needs more resilience and a broader base of support than any conventional privately-sourced Project-Financing could muster and rely upon.**
- **This mid-term Community-Developmental Goal requires Community-Control, -Input and -Support towards eventual Self-Sustainability.**

What may well be called for is an unorthodox Public-Private Partnership, based on two *parallel* schedules of Project-Evolution on the Harbor:

1. Design&Prototyping of increasingly larger hulls elsewhere on the Harbor.

2. I4-C2 site-planning, design, permitting and eventual construction.

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Incubating this Vital Marine Industry (2/3)

Project-Schedule 1 (PS1) aims to develop basic small-scale boat-construction Capabilities, beginning with modest steps towards the construction of light 'green' craft - an effort maturing elsewhere on the Harbor as we speak. Next under PS1 would be leveraging state and federal 'Low-Carbon'-Projects R&D funding to build several progressively larger prototypes to establish their fundamental effectiveness under $5/gal fuel-cost.

Parallel to this, Project-Schedule 2 (PS2) structures the I4-C2 site development such as
a.) Detailed Site-Design and Building-Engineering Processes,
b.) Securing of Funding for key Site-Development stages,
c.) Permitting Sequences,
d.) Stages of Construction,
all in all likely a multi-year schedule.

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Incubating this Vital Marine Industry (3/3)

Leveraging a 'green'-sympathetic White House and Beacon Hill, the Building should be well-subsidizable as the foundation for the Creation of sustainable industrial 'Green-Collar Jobs' -and solid Careers.

Using a *5-year Industry-Incubation Model* before considering turning over the Property's Long-Term lease to a private organization - the City would host a series of progressively larger hull-construction-projects to build industrial momentum that puts Gloucester's growing capability on the map.

The Projects would be customer-financed, stimulated by rising fuel-costs. Incentives do exist for the fishing industry's migration to such types with e.g. federal loan-guarantees and favorable tax-schedules. Here on Cape Ann we'd expect private owners and Yacht-Clubs to consider 'buying local&green'.

Finally, this facility would contribute Gloucester's exclusive 'Working Waterfront' Curriculum to N.S. Voc-Tech School, focusing on all Boat-Building-related trades. This is a vital part of this Port-Industrial Development Model.
